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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,341	07/24/2003	Mahfuza B. Ali	57169US003	9160

32692 7590 02/06/2006

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EXAMINER
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PEZZUTO, HELEN LEE

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/626,341

**Applicant(s)**

ALI ET AL.

**Examiner**

Helen L. Pezzuto

**Art Unit**

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 8-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-58 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/28/05</u> . | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

***Election/Restrictions***

1. Claims 8-58 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/14/05.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by the abstract of JP-4-41423.

JP-423 discloses a thermoresponsive hydrogel film,  
wherein a film comprising 94 wt% N-isopropylacrylamide and

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1 wt% ethylene glycol dimethacrylate is exemplified in working example 1. Thus, anticipating the present claims.

5. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaetsu et al. (US-758).

US 5,152,758 to Kaetsu et al. discloses a hydrogel produced by alkali hydrolysis of a copolymer comprising 100 parts by weight of N-isopropylacrylamide, 5 to 50 parts by weight of an ionic monomer and 2-15 parts by weight of a crosslinking agent (col. 3, lines 18-45). Suitable crosslinking agents include polyfunctional dimethacrylates. Example 1 shows a hydrogel containing 5 wt% diethylene glycol dimethacrylate. Hence, anticipating the present claims.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaetsu et al. (US-758) for the reasons set

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forth in the preceding paragraph and further in view of the following remarks.

As stated, US-758 teaches 2-15 parts by weight of polyfunctional dimethacrylates as suitable crosslinking comonomer. Though not exemplified, 15 parts by weight of said crosslinking comonomer would result in an upper limit in excess of 10 wt% non-terminal pendant unsaturated (meth)acrylate expressed in the present claims. The limitation of having at least three ethylenically unsaturated pendant (meth)acrylate groups expressed in claims 6-7 would be obvious and readily envisaged in view of prior art disclosure of using 2-15 parts by weight of the dimethacrylate crosslinking comonomers, absent of unexpected and/or unusual results.

8. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US-930) or Meier et al. (US-946) or Kazakov et al. (US-455).

US 4,732,930 to Tanaka et al. discloses an ionic gel obtained by polymerization of isopropylacrylamide in the presence of an ion-containing monomer, and a crosslinking agent (abstract). Suitable crosslinking agents include ethylene glycol dimethacrylate and glycerine triacrylate (col. 2, line 67 to col. 3, line 10). The presently claimed

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reactive polymer would be formed as taught. Prior art discloses using 0.3 to 3 mol% of the crosslinking agent, but not limited by the mol% disclosed.

Similarly, US 2003/0044455 A1 discloses a process of preparing polymer nanogel derived from polymers and copolymers of N-isopropylacrylamide, wherein crosslinking comonomers may be incorporated (page 4, [0050]; page 5, [0063]-[0064]). Suitable crosslinking agents include multifunctional di(meth)acrylates and triacrylate. The instant reactive polymer would be expected to be formed during the polymerization as taught in prior art disclosure.

US 6,616,946 B1 to Meier et al. discloses stimulus responsive block copolymer hollow particle delivery system, comprising amphiphilic triblock ABA or BAB copolymer (abstract). Dual or multi stimuli responsive polymers are taught to be within the scope of prior art delivery system, inclusive of N-isopropyl acrylamide copolymers (col. 5, lines 19-28; col. 7, lines 46-61; col. 12, lines 59-62). Suitable hydrophobic segment B in the amphiphilic copolymer include polybutadiene (col. 9, lines 29-39) which would correspond to the instant requirement of pendant ethylenically unsaturated group. Furthermore, prior art

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teaches introducing polymerizable groups at the end or pendent position in the growing segment (col. 12, line 59 to col. 13, line 19). Still further, crosslinking agents such as multifunctional (meth)acrylates in an amount of 20-0.05 wt% are also suggested (col. 13, line 50 to col. 14, line 13), thus, further meeting the instant reactive polymer limitations.

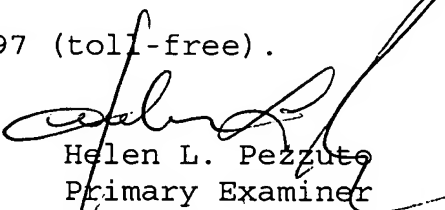
Prior art discussed do not expressively exemplify every embodiments of the instant reactive polymer, but do, however disclose their production. Accordingly, it would have been obvious to one skilled in the art to select N-isopropylacrylamide copolymerize with the suitable multifunctional comonomers and crosslinking monomers, motivated by the reasonable expectation of success. Once the combination of components is suggested, the discovery of optimum or workable ranges of these components involves only routine skill in the art. Thus, rendering obvious the present claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Helen L. Pezzuto  
Primary Examiner  
Art Unit 1713

hlp